NOVEMBER/DECEMBER 2025

23PCS11 — ANALYSIS AND DESIGN OF ALGORITHMS

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is Pseudocode?
2. Define the term – Stack.
3. What are Graph traversal techniques?
4. What is Quick sort?
5. Define the term – Greedy method.
6. What is Spanning tree?
7. What is 0/1 Knapsack problem?
8. What is Traveling Salesperson problem?
9. Define the term – Backtracking.
10. What is Graph coloring?

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SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions.

11. (a) Describe the fundamentals of Recursive algorithms.

Or

(b) Explain the basics of Binary Search Trees.

12. (a) Describe briefly about Binary Tree traversal techniques.

Or

(b) Discuss on the working of Merge sort algorithm with a numerical example.

13. (a) Explain briefly the algorithm for Knapsack problem.

Or

(b) Describe briefly about the algorithm for Single source Shortest paths.

14. (a) Discuss on Multistage Graphs with example.

Or

(b) Explain the procedure in Flow shop scheduling.

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15. (a) Describe the algorithm for 8-Queens problem.

Or

(b) Discuss on the algorithm for Sum-of-Subsets problem.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the concept of Heap and the functioning of Heap sort.

17. Explain the working off Binary Search algorithm using an example.

18. Explain the concepts of Kruskal's algorithm with an example.

19. Describe about the fundamentals of Optimal Binary Search trees.

20. Explain the general method of Backtracking in detail.

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